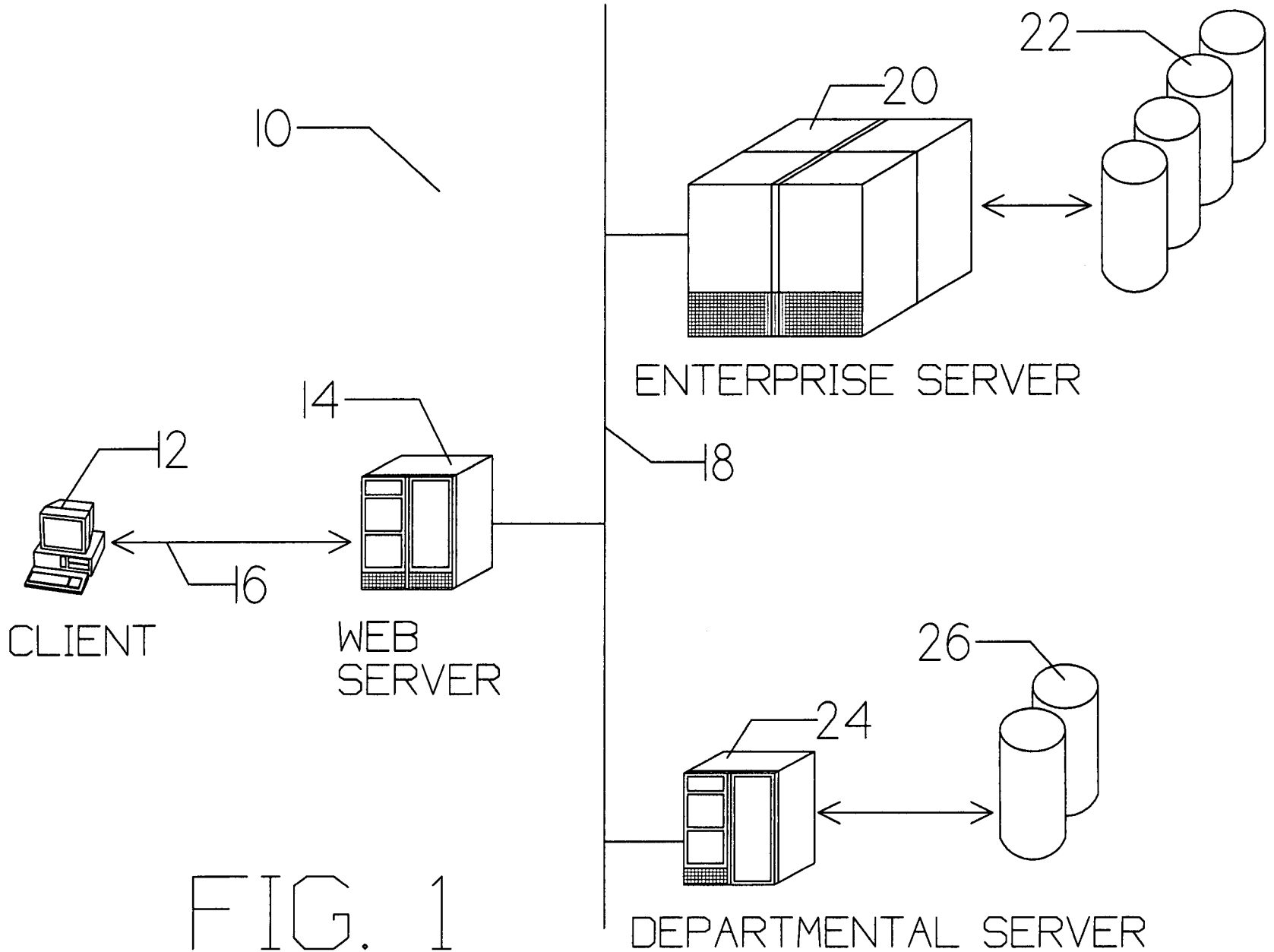
10
20
22
ENTERPRISE SERVER
14
12
18
16
CLIENT
WEB
SERVER
26
24
DEPARTMENTAL SERVER

FIG. 1

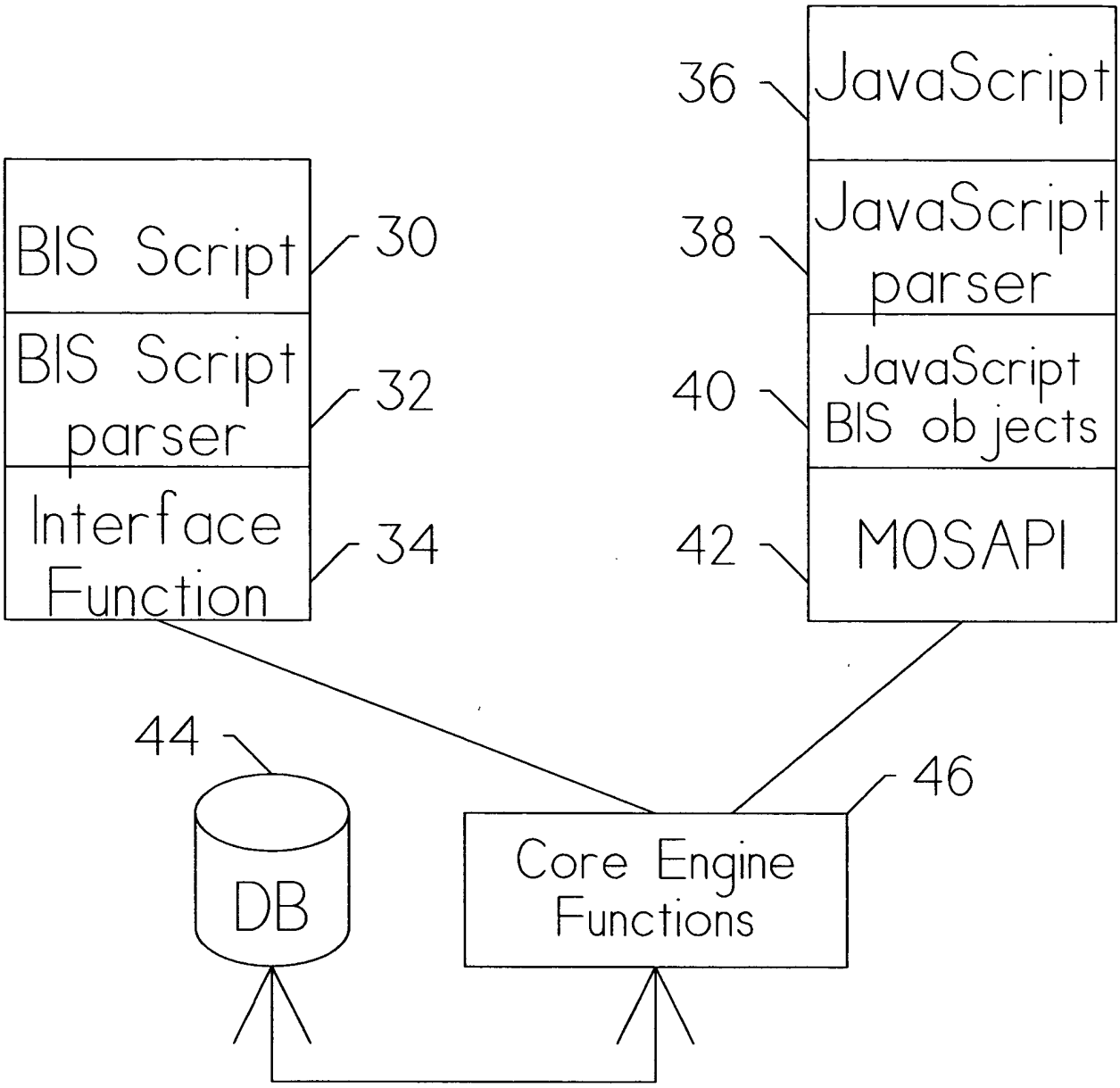
BIS Script
30
BIS Script parser
32
Interface Function
34
36
JavaScript
38
JavaScript parser
40
JavaScript BIS objects
42
MOSAPI
44
DB
46
Core Engine Functions

FIG. 2

TYPICAL FUNCTIONS FOR DATASET OBJECT oDs:

```
oDs.addRecord({colVal{....{,colVal50}}})
oDs.addRecords(numRecords{,colVal{....{,colVal50}}})
oDs.cancelRecordUpdate()
oDs.close({bulkUpdateOption})                                    //bulk update
oDs.column[columnID].name                                        //read only
oDs.column[columnID].size                                        //read only
oDs.column[columnID].value
oDs.columnCount                                                  //read only
oDs.copy()                                                       //returns Dataset object
oDs.create(container,oCrCols{,crReportTypes=crTemporary})        //creates new Dataset object
oDs.createFrom(container,source{,crReportTypes=crTemporary})     //creates new Dataset object
oDs.currentRecord
oDs.deleteRecords({numRecords=1})
oDs.findRecord(oFindRecordParams,recordNumber{,columnNumber{,columnPosition}})
oDs.firstRecord()
oDs.insertRecord({colVal{....{,colVal50}}})
oDs.insertRecord(s(numRecords{,colVal{....{,colVal50}}})
oDs.lastRecord()
oDs.name                                                         //read only
oDs.nextRecord()
oDs.open(dataset-id,access{,wait=true})
oDs.overwrite                                                    //controls Dataset result
oDs.prevRecord()
oDs.RecordCount
oDs.remove})
oDs.save(container)                                              //read only
oDs.searchRecord(oSearchRecordParams,recordNumber)               //deletes dataset and Dataset object
oDs.sort(oSortParams)                                            //returns dataset ID
```

FIG. 3

VALUE-ADD POWER FUNCTIONS FOR DATASET OBJECTS oDs

```
oDs.compareDatasets(.CompareParams.oCompareStatus)

//Dataset result is returned as controlled by the Dataset "overwrite" property
oDs.calculate(oCalculateParams{.numberOfRecords{.recordsProcessed}})
oDs.combineDatasets(oCombineParams{.recordsFound{.recordsCompared}})
oDs.find(oFindParams{recordsFound})
oDs.interval(.IntervalParams{.oIntervalStatus})
oDs.search(oSearchParams{.recordsFound{.recordsSearched}})
oDs.tally(oTallyParams{.oTallyStatus})
```

FIG. 4

```
var oSearchParams = new SearcParams():

oSearchParams.caseSensitive
oSearchParams.findNumeric
oSearchParams.group
oSearchParams.invert
oSearchParams.maxFinds
oSearchParams.numberOfRecordsToSearch
oSearchParams.startRecordNumber

oSearchParams.columnItem[n].columnInfo("columnid{{startPos{,endPos})}"{,dateFormat})
oSearchParams.searchItem[n].addValueInfo(columnItem, value{,valueRange})

//Calling format
oDs.search(oSearchParams{,recordsFound{,recordsSearched}})
```

FIG. 5

Partial JavaScript

```
// Search "CustCode", "StCd" and last 4 characters of the "Product Type"
// columns
. . . .
var srh = new SearchParams();
srh.columnItem(1).columnInfo("CustCode");
srh.columnItem(2).columnInfo("Product Type(6, 9)");
srh.columnItem(3).columnInfo("StCd");
srh.searchItem(1).addValueInfo(1, "amco");
srh.searchItem(1).addValueInfo(2, "box0", "box1");
srh.searchItem(1).addValueInfo(3, "ip");
srh.searchItem(2).addValueInfo(3, "ip");                    //can be out
srh.searchItem(2).addValueInfo(2, "box2", "box3");          //of order
srh.searchItem(2).addValueInfo(1, "intr");
srh.searchItem(3).addValueInfo(1, "dico");
srh.searchItem(3).addValueInfo(2, "box4", "box5");
srh.searchItem(3).addValueInfo(3, "or");
srh.searchItem(4).addValueInfo(1, "arco");
srh.searchItem(4).addValueInfo(2, "box6", "box7");
srh.searchItem(4).addValueInfo(3, "sh");
srh.searchItem(5).addValueInfo(1, "amco");
srh.searchItem(5).addValueInfo(2, "box8", "box9");
srh.searchItem(5).addValueInfo(3, "or");
var nFnd = nSrh = 0;
ds2.search(srh, nFnd, nSrh);
```

FIG. 6

Equivalent MAPPER run-script:

```
@SRH. 0.B.2 ' ' 2-2.20-4.45-4 __.'ip'.'box0'.'amco'/r.'ip'.'boxl'.'amco'/__.'ip'.'b\
ox2'.'intr'/r.'ip'.box3'.'intr'/__.'or'.box4'.'dico'/r.'or'.'box5'.'dico'/__.'s\
h'.'box6'.'arco'/r.'sh'.'box7'.'arco'/__.'or"box8'.'amco'/r.'or'.'box9'.'amco'/\
```

Results:

*St. *CD.	Status. Date.	By. In.	Product Typ:e	.Serial. .Number.	Produc Cost	Order Number	Cust. Code	Produc Plan	Produc Actual	Ship Date	Ship Order	Spc Cod
IP	831224	LS	BLACKB0XI	436767		84389	AMC0	831223	831224			
IP	831225	LS	BLACKB0XI	436768		84390	AMC0	831223	831225			
IP	831219	LS	BLACKB0X2	637071		84353	INTR	831218	831219			
SH	831203	LS	BLACKB0X6	785367		52833	ARC0	831201	831202	831203	S8934	
0R	831217	LS	BLACKB0X9			98755	AMC0					
0R	831210	LS	GREENB0X5			99753	DIC0					

FIG. 7

Partial JavaScript and Sample Output for SearchParams object/Update Dataset object

```
...                                                                                    //1
var oSearchParams = new SearchParams();                                                //2
oSearchParams . columnItem[1] .columnInfo("CustCode");                                 //3
oSearchParams . searchItem[1] . addValueInfo(1, "amco");                               //4
oSearchParams . update = true;                                                         //5
var oDsu = oDs . search(oSearchParams, recordsFound, recordsSearched);                 //6
while (oDs . currentRecord() != - 0){                                                  //7
  if (oDsu.column("OrderNumbr"). value == "84389") {                                   //8
  oDsu.prevRecord();              //reposition for deleted record                      //9
  }else {                                                                              //10
  oDus.column("CustCode"), value = "abcd");                                            //11
  oDus . nextRecord(1);                                                                //12
  }                                                                                    //13
}                                                                                      //14

oDsu.close(oDs, BupMerge);                    //bulk update merge                    //15
// Available results
... recordsFound                                                                       //16
... recordsSearched                                                                    //17
```

FIG. 8

Results at line 5 -- before bulk update:

St Cd	Status Date	By In	Product Type	Serial Number	Produc Cost	Order Numbr	Cust Code	Produc Plan	Produc Actual	Ship Date	Ship Order	Spc Cod
IP	831224	LS	BLACKBOX1	436767	13500	84389	AMCO	831223	831224			
IP	831225	LS	BLACKBOX1	436768	13600	84390	AMCO	831223	831225			
IP	831222	LS	BLACKBOX5	737582		84040	AMCO	831222	831222			
IP	831227	LS	BLACKBOX7	733597		84351	AMCO	831227	831227			
OR	831217	LS	BLACKBOX9			98755	AMCO					
SH	831204	LS	BLACKBOX9	714577		64231	AMCO	831201	831203	831204	S8531	
SH	831206	LS	GREENBOX7	669624		54682	AMCO	831201	831205	831204	S8553	
SC	840110	LS	GREENBOX8	975481		99943	AMCO	84110				
OR	830310	LS	GREENBOX9			99951	AMCO					

FIG. 9

Results at line 5 -- before bulk update:

St Cd	Status Date	By In	Product Type	Serial Number	Produc Cost	Order Numbr	Cust Code	Produc Plan	Produc Actual	Ship Date	Ship Order	Spc Cod
IP	831224	LS	BLACKBOXI	436767		84389	ANCO	831223	831224			
IP	831225	LS	BLACKBOXI	436768		84390	abcd	831223	831225			
IP	831219	LS	BLACKBOX2	637071		84353	INTR	831218	831219			
OR	840110	LS	BLACKBOX4			94754	ARCO					
SC	840110	LS	BLACKBOX5	675281		97441	FEDS	840131				
IP	831222	LS	BLACKBOX5	737582		84040	abcd	831222	831222			
SH	831203	LS	BLACKBOXO	746327		54237	FEDS	831201	831202	831203	S8738	
SH	831202	LS	BLACKBOX6	368061		54438	FEDS	831201	831201	831202	S6937	
SH	831209	LS	BLACKBOX6	777324		54232	DICO	831207	831208	831209	S8538	
SH	831203	LS	BLACKBOX6	785367		52833	ARCO	831201	831202	831203	S8934	
IP	831216	LS	BLACKBOX6	926581		89381	INTR	831215	831216			
OR	831210	LS	BLACKBOX7			99842	FEDS					
OR	831227	LS	BLACKBOX7			99725	INTR					
SC	840108	LS	BLACKBOX7	665481		97541	FEDS	840122				
IP	831227	LS	BLACKBOX7	733597		84351	abcd	831227	831227			
SH	831202	LS	BLACKBOX7	744627		44232	INTR	831201	831201	831202	S8531	
IP	831215	LS	BLACKBOX7	933581		84381	FEDS	831215	831215			
OR	831230	LS	BLACKBOX8			92788	FEDS					
SH	831203	LS	BLACKBOX8	945327		74272	FEDS	831201	831202	831203	S8518	
OR	831217	LS	BLACKBOX9			98755	abcd					
OR	831210	LS	BLACKBOX9			98782	USSC					
IP	831217	LS	BLACKBOX9	538993		84781	USSC	831215	831217			

FIG. 10

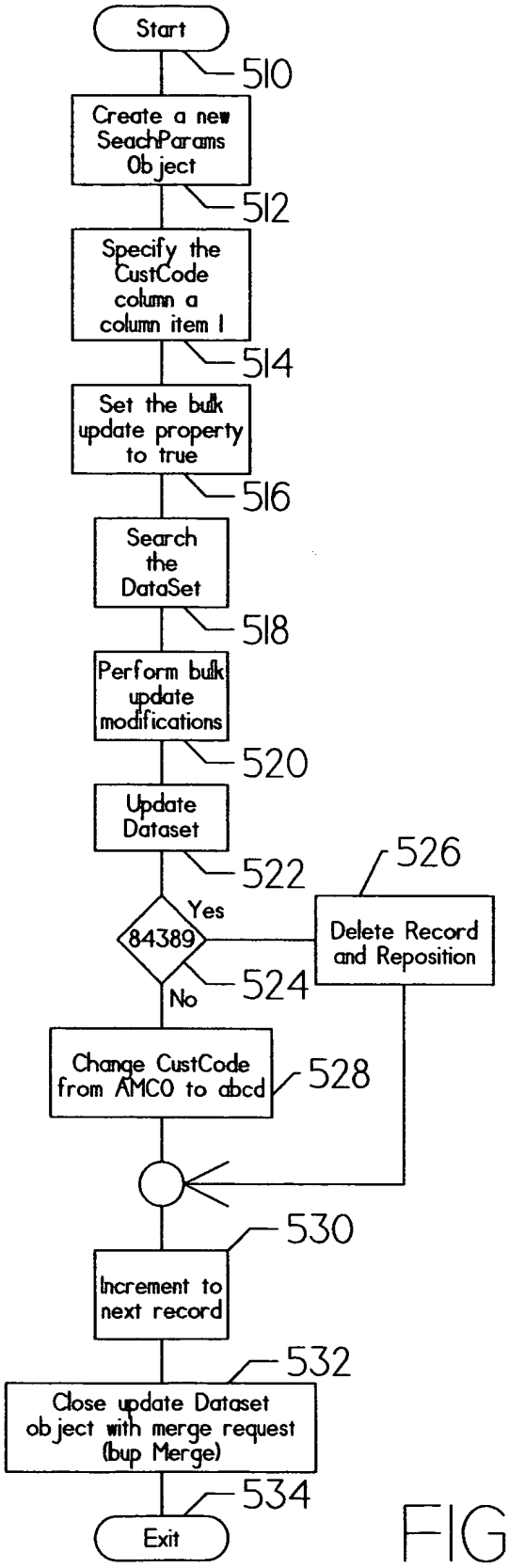
Start
510
Create a new SeachParams Object
512
Specify the CustCode column a column item I
514
Set the bulk update property to true
516
Search the DataSet
518
Perform bulk update modifications
520
Update Dataset
522
526
Yes
84389
Delete Record and Reposition
524
No
Change CustCode from AMCO to abcd
528
530
Increment to next record
532
Close update Dataset object with merge request (bup Merge)
534
Exit

FIG. 11

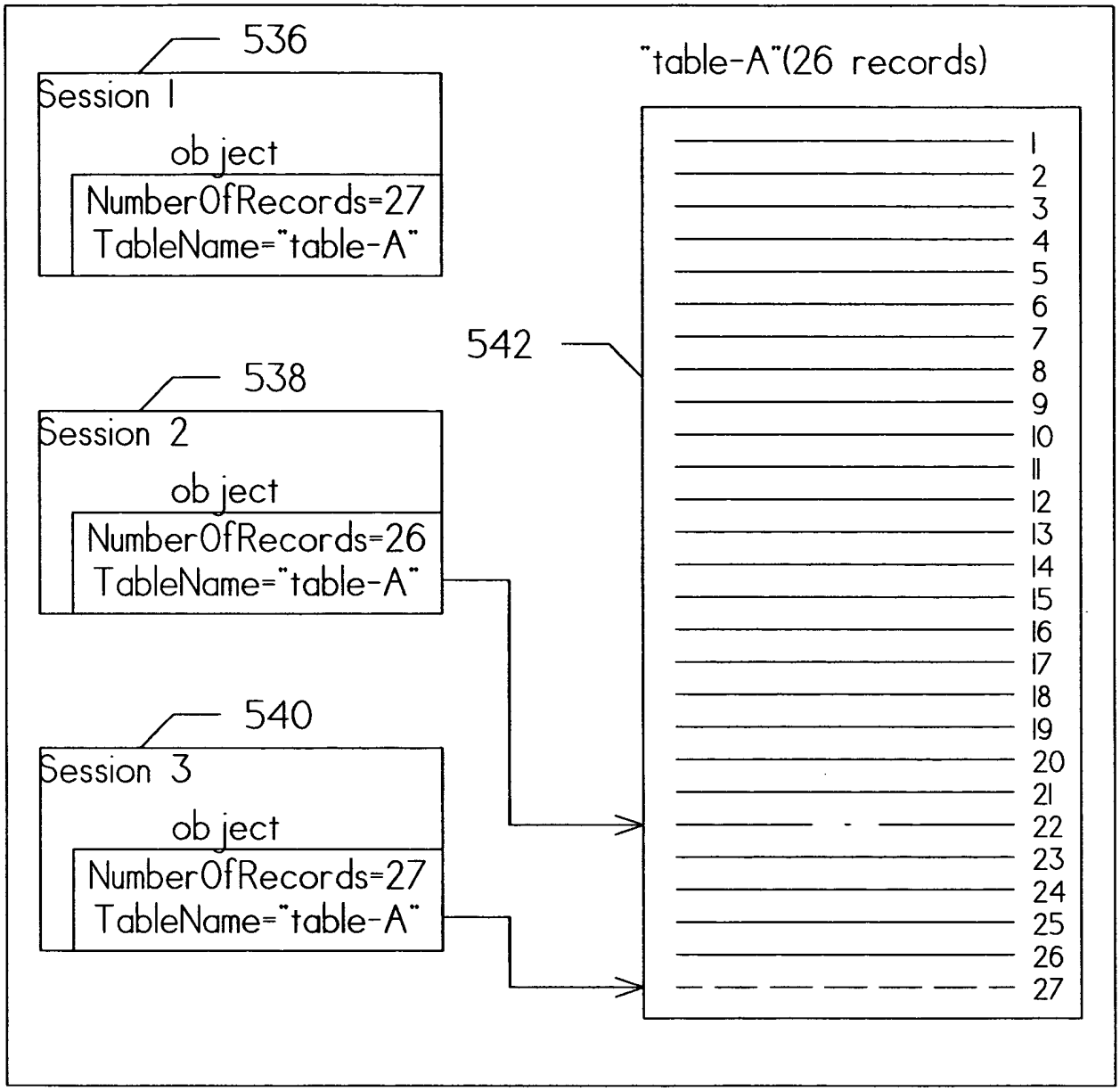
536
Session 1
object
NumberOfRecords=27
TableName="table-A"
538
Session 2
object
NumberOfRecords=26
TableName="table-A"
540
Session 3
object
NumberOfRecords=27
TableName="table-A"
542
"table-A"(26 records)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

FIG. 12

Entity Event	Effect on Version property
Initial reference	Property value set to zero
Property query (non-deferred)	Current primary property value returned
Property query (deferred)	Current deferred property value returned
Begin deferred sequence	Copy primary property value to deferred property value
Update (immediate)	Increment primary property value by one
Update (deferred)	Increment deferred property value by one (primary unchanged)
Commit (deferred)	Copy deferred property value to primary property value

FIG. 13

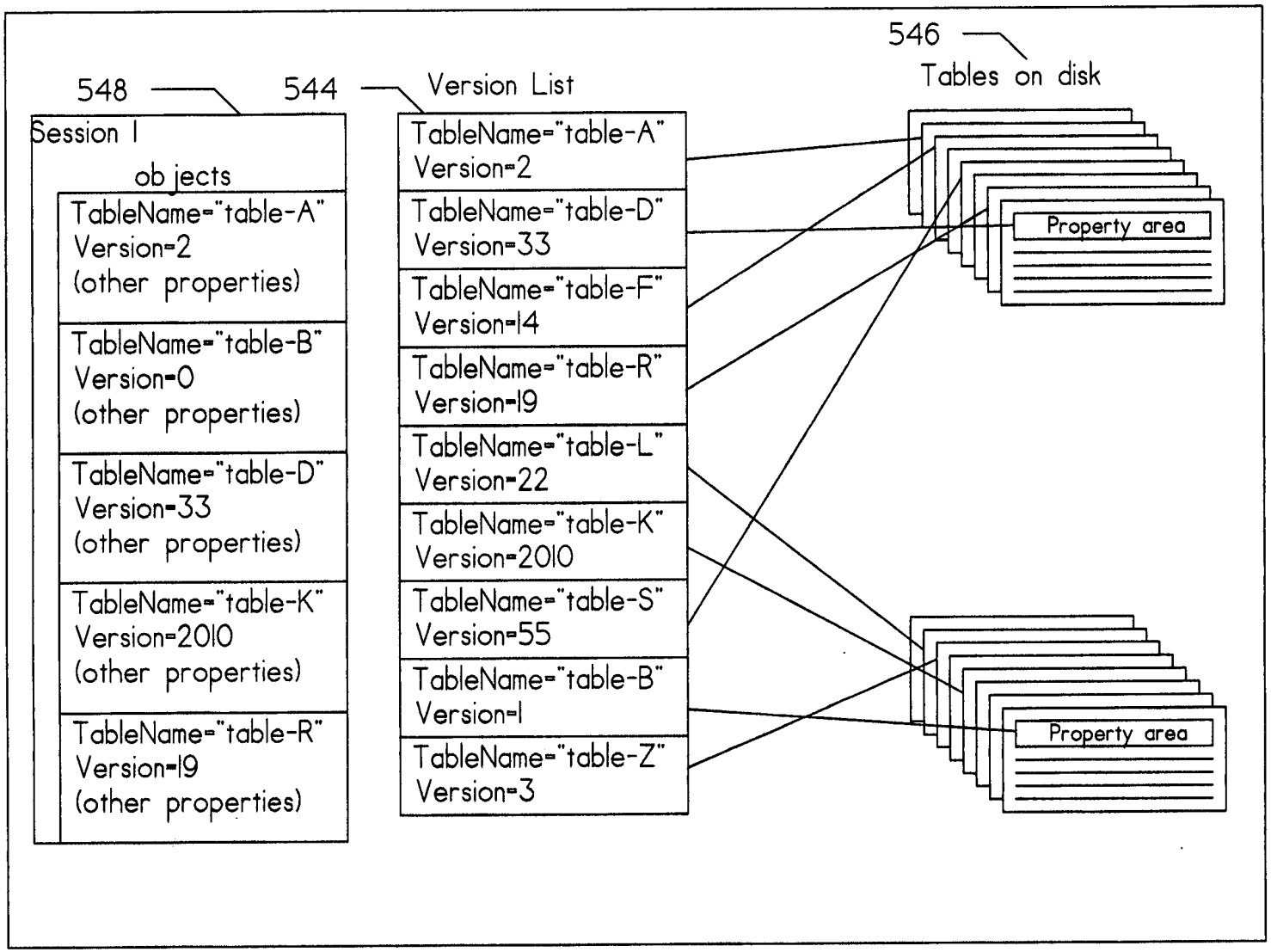
546
Tables on disk
548
544
Version List
Session 1
objects
TableName="table-A"
Version=2
(other properties)
TableName="table-B"
Version=0
(other properties)
TableName="table-D"
Version=33
(other properties)
TableName="table-K"
Version=2010
(other properties)
TableName="table-R"
Version=19
(other properties)
TableName="table-A"
Version=2
TableName="table-D"
Version=33
TableName="table-F"
Version=14
TableName="table-R"
Version=19
TableName="table-L"
Version=22
TableName="table-K"
Version=2010
TableName="table-S"
Version=55
TableName="table-B"
Version=1
TableName="table-Z"
Version=3
Property area
Property area

FIG. 14